

Canadian Oil and Gas: Moving from Choppy to Smoother Waters



CAPP Scotiabank Investment Symposium



**Jackie Forrest, Vice President, Energy Research, ARC Financial Corp.
April 12, 2016**

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Session Agenda

Part 1

Today and the Near-Term Outlook

Part 2

Forces of Change - Global and Local

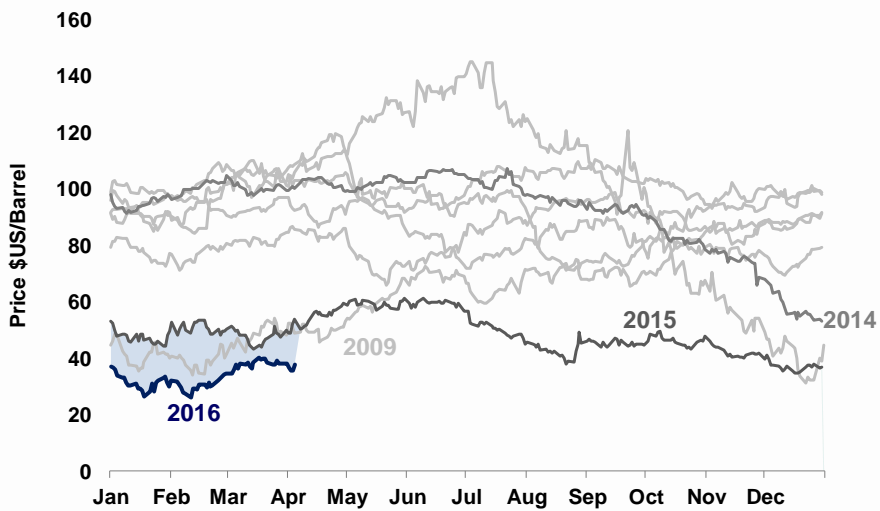
Part 3

Longer-Term Outlook



WTI Crude Oil Price

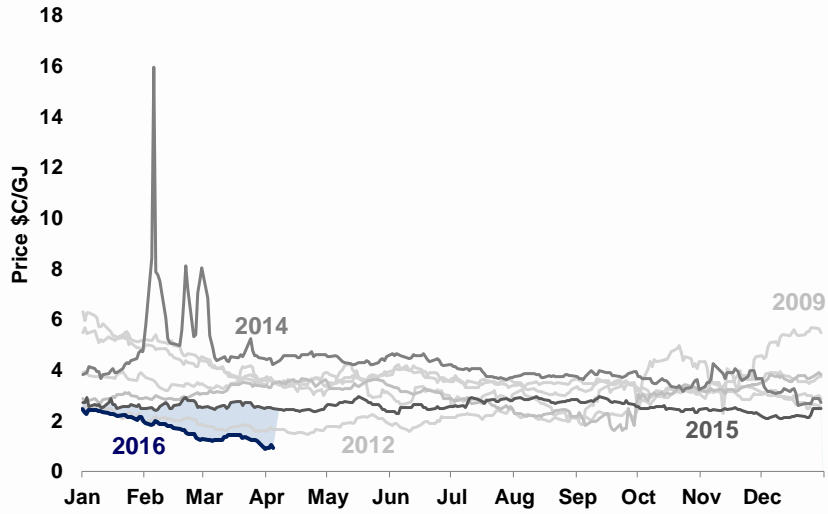
Historical Tracks and Current Year Levels



Source: Bloomberg, ARC Financial Corp.



AECO Natural Gas Price

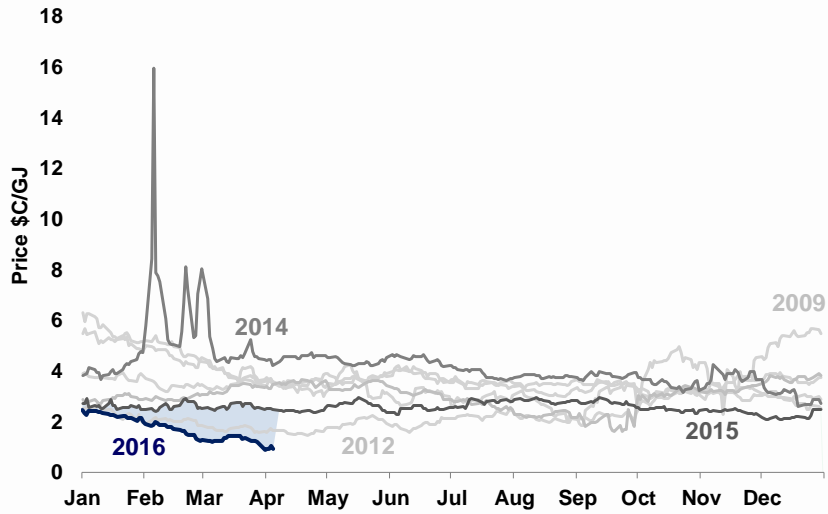


Source: Bloomberg, ARC Financial Corp.



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AECO Natural Gas Price



Source: Bloomberg, ARC Financial Corp.

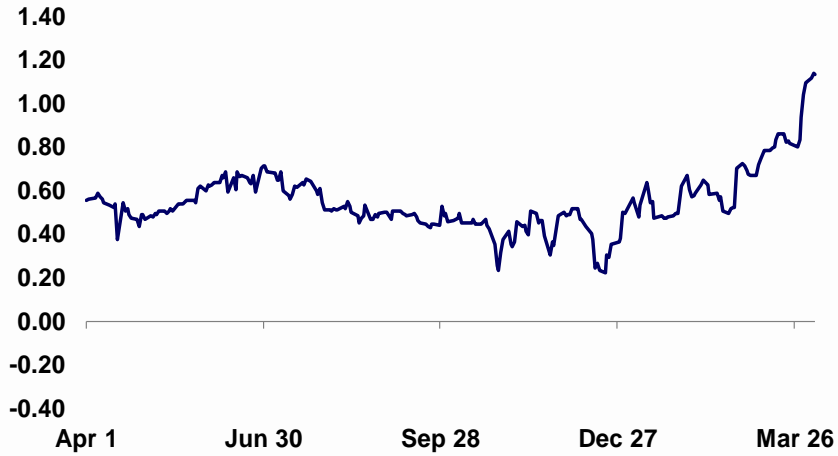


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Henry Hub-AECO Near-Month Price Differential

Daily; Rolling 12-Month History

\$US/MMBtu

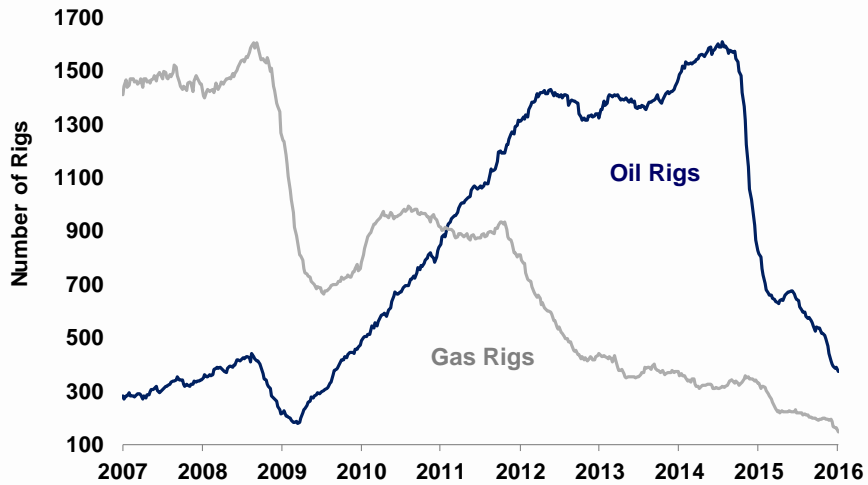


Source: Bloomberg, ARC Financial Corp.



Weekly US Oil and Gas Drilling Activity

Baker Hughes Average Rig Counts

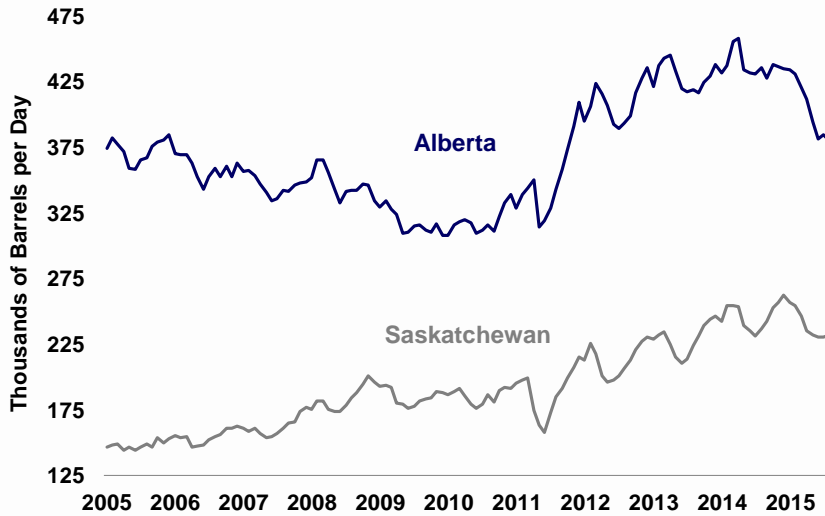


Source: Baker Hughes, ARC Financial Corp.



Alberta and Saskatchewan Oil Production

Monthly; Light & Medium Crude

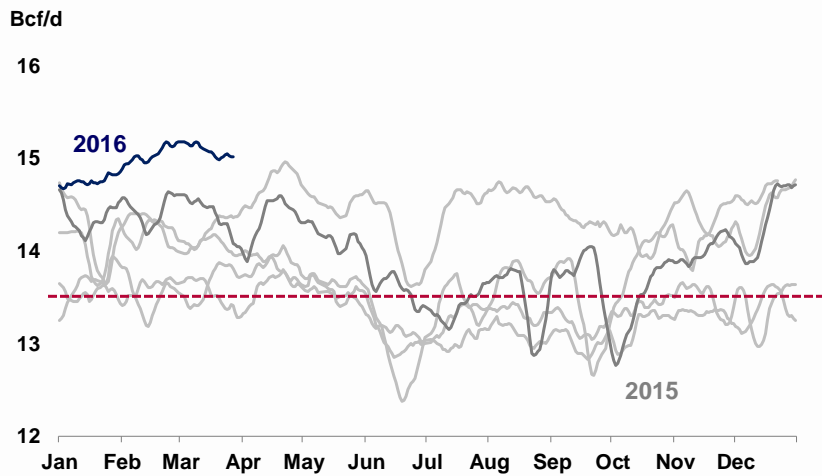


Source: AER, Saskatchewan Government, ARC Financial Corp.



Daily Western Canadian Pipeline Receipts

TransCanada (NOVA), Alliance, WestCoast & TransGas Pipelines

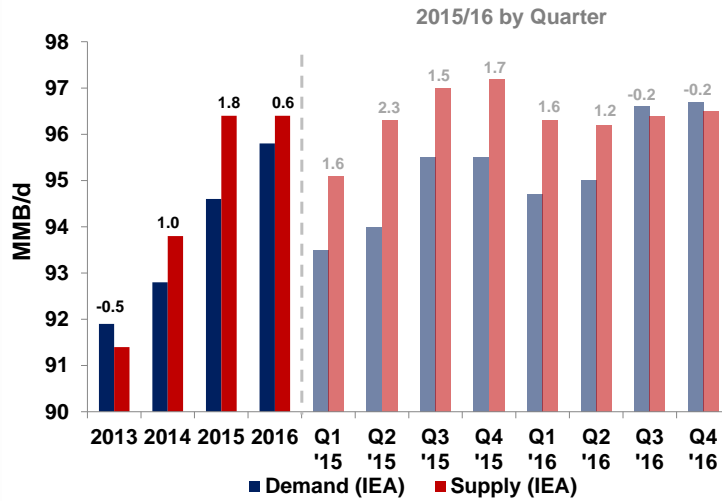


Source: Various Company Reports, ARC Financial Corp.



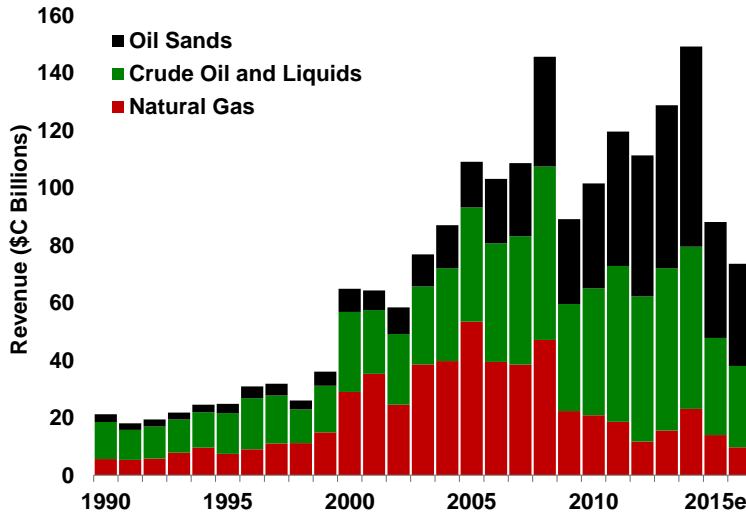
Oil Supply Growth Still Overwhelming Demand

Global Oil Supply, Demand History and Outlooks



Source: IEA March 2016
 ARC assumes Iran gains 0.3 MMB/d in Q1 2016 and another 0.2 MMB/d for the rest of 2016. Rest of OPEC is flat from Q4 2015 levels.

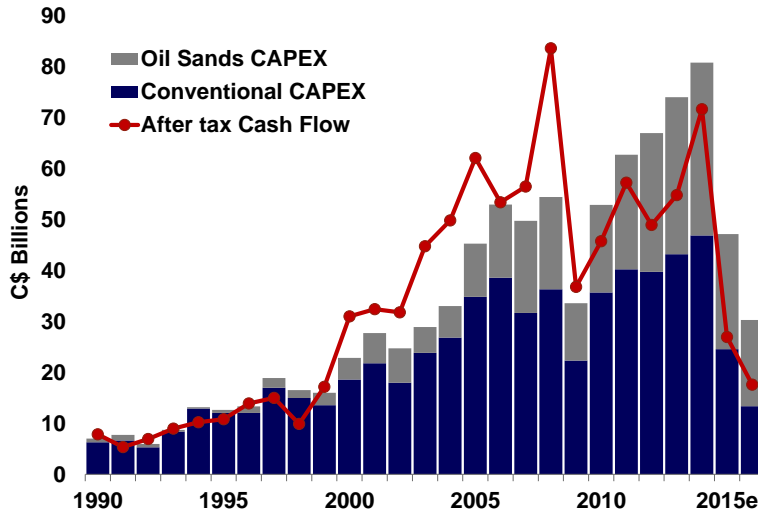
Canadian Upstream Hydrocarbon Revenue



Source: CAPP, ARC Financial Corp.

Cash Flow versus Capital Expenditures

CAPEX Stacked by Industry Segment

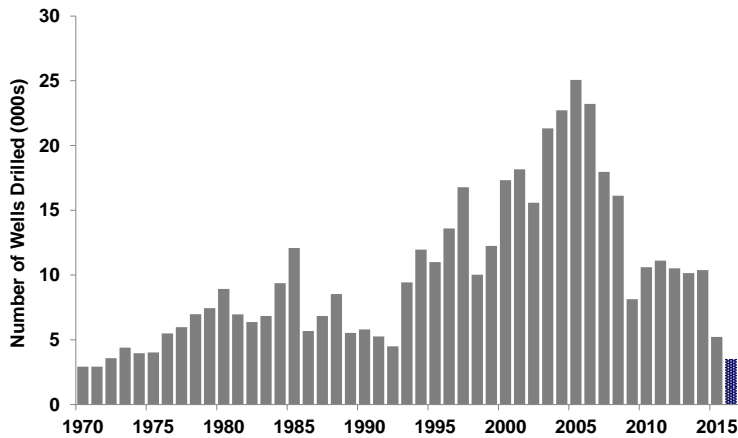


Source: CAPP, ARC Financial Corp.



Number of Wells Drilled in Western Canada

1970 - 2015E

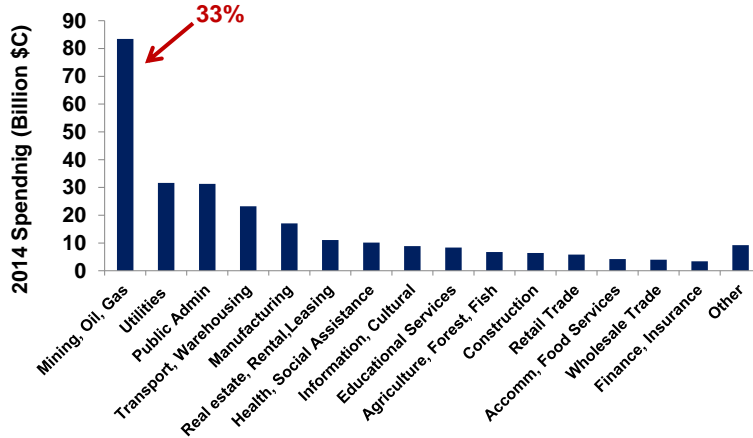


Source: CAPP, ARC Financial Corp.



Canadian Capital Spending by Industry

2014



Source: Statscan - Capital Expenditures by NA Industry Table 029-0045



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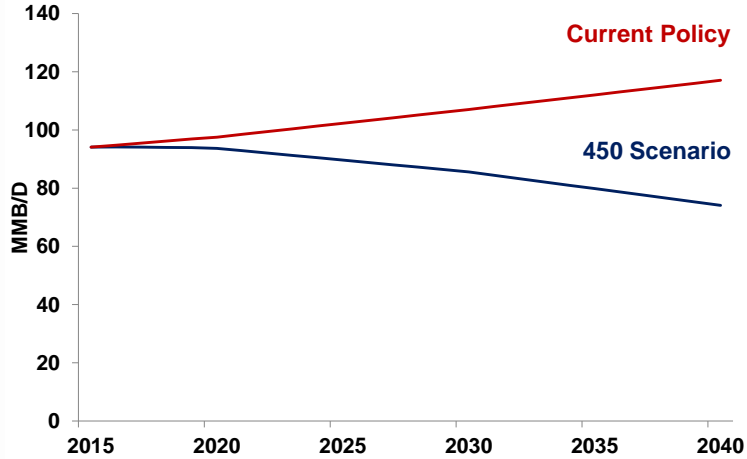
Part 3

Longer-Term Outlook



IEA Outlooks for Petroleum Crude Oil Demand

2015 to 2040

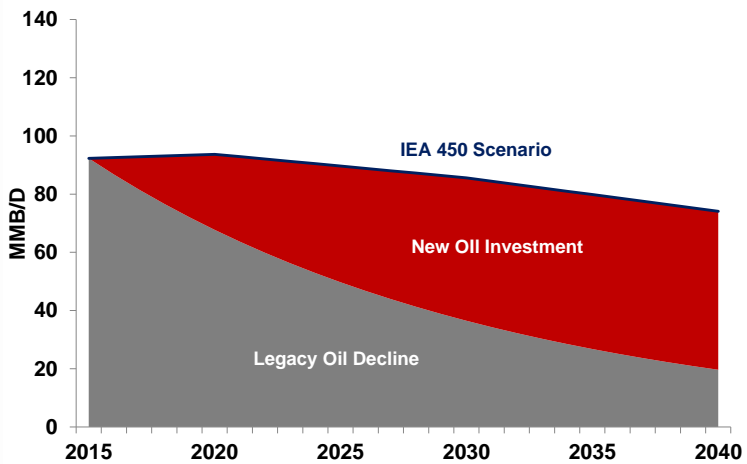


Source: IEA, ARC Financial Corp. (does not include biofuels)

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IEA Outlook for Crude Oil Demand in a 450 ppm Scenario

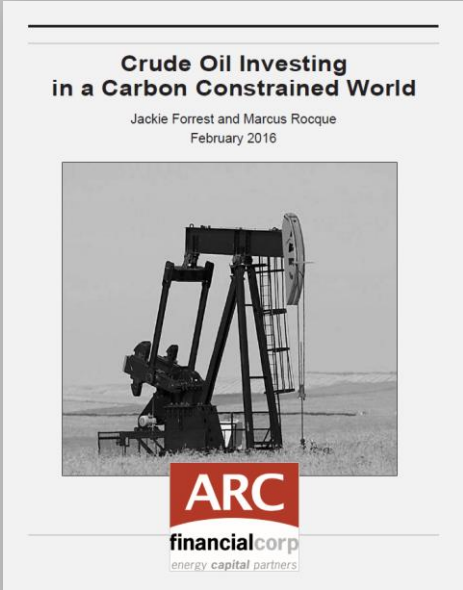
2015 to 2040



Source: IEA, ARC Financial Corp. (does not include biofuels)

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**Crude Oil Investing
in a Carbon Constrained World**
Jackie Forrest and Marcus Rocque
February 2016



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Canadian Challenges



Market Access **High Costs** **Competition**

Environment **Social Friction** **Changing Policy**

OIL AND GAS FUNDAMENTALS POLICY AND ENVIRONMENT MARKET ACCESS TECHNOLOGY ARC FINANCIAL CORP TERMS & CONDITIONS

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ARC ENERGY IDEAS

The Thorny Issue of Low Canadian Gas Prices
April 5, 2016 By Jackie Forrest

The price of Western Canadian Natural gas is getting hammered. At one point last Thursday, a gigajoule of natural gas was trading for only \$C 0.85 at Alberta's AECO hub. By the end of the week it had recovered closer to \$C 0.92. But that is still incredibly low. The last time the industry realized these price levels was during the 1990s.

Across the country, due to an other gas production with discounts be expected. High volatility due to depressed AECO prices. Additionally, system has unleashed a surge of new production this year. Compared to 2015, production is up 6% or almost 1 Bcfd. Further amplifying the problem, pipeline flows are at capacity. With nowhere else to go, the surplus gas is flowing into Western Canada from this year's warm winter. Storage levels are currently about 70% of spare capacity, the unusually high levels are making the market nervous. Deep, sustained discounts from other North American price hubs are not physical takeaway capacity. A textbook example occurred in 2012-2011 giveaways prices due to a lack of pipeline capacity. For Western Canadian gas, unlike oil, today's price markdown is not of the largest natural gas pipeline leaving Alberta – the 50-year-old Trans

Photo: ARC Financial

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This blog is a platform for sharing ideas on issues critical to the future of energy, the environment, and the economy.

The Authors:

Markets for Western Canadian Natural Gas

The map illustrates the flow of Western Canadian Natural Gas from the AECO hub in Alberta to major US markets. AECO is marked with a red dot in Alberta. Chicago and Dawn are marked with red dots in the Midwest. Henry Hub is marked with a red dot in the South. Malin is marked with a red dot in the West. Large grey arrows point from AECO to Chicago and Dawn, indicating the primary export routes for this gas.

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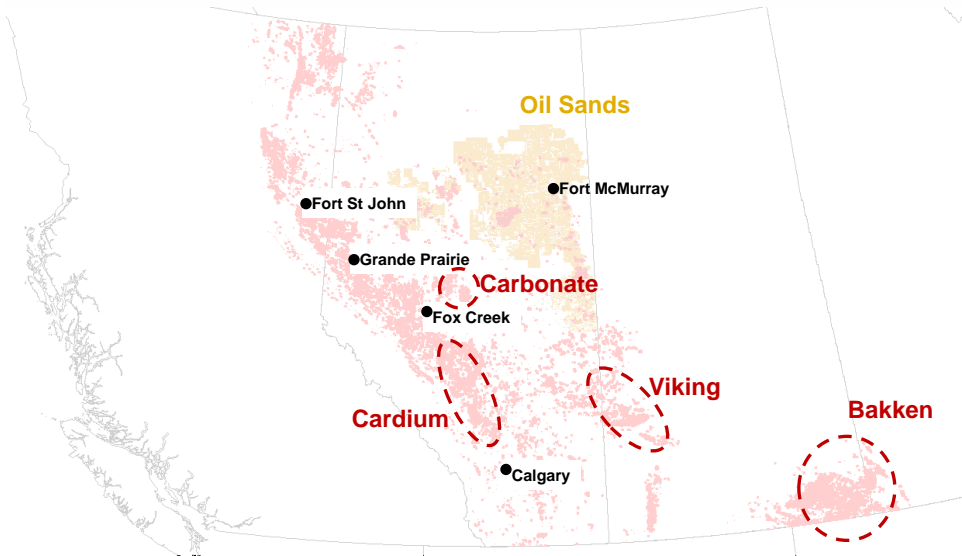
Forces of Change - Global and Local

Part 3

Longer-Term Outlook

Western Canada

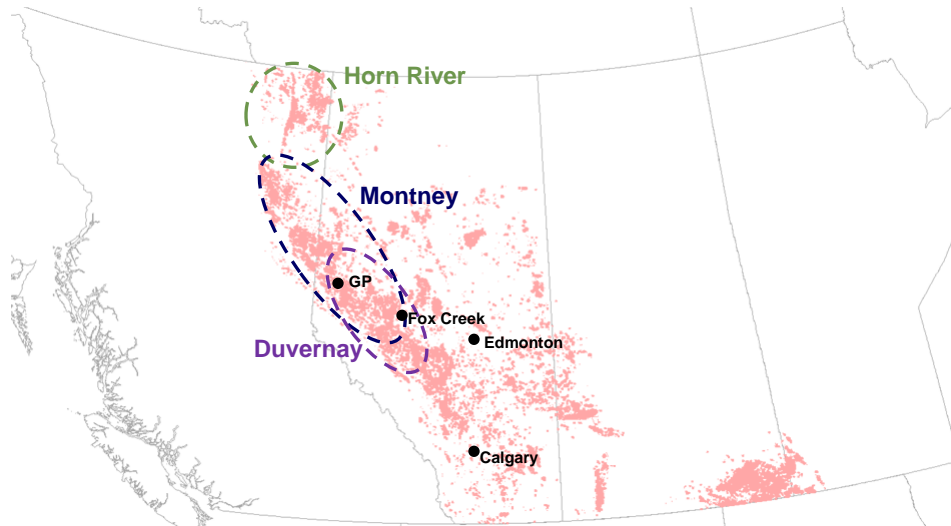
Tight Oil and Oil Sands Areas



Source: GeoSCOUT, ARC Financial Corp.

Western Canada

Major Shale Gas Plays



Source: GeoSCOUT, ARC Financial Corp.

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